

## CLAIMS

1. A container having a wall structure comprising a polymer material, characterized in that the  
5 polymer material includes an acid diffusion barrier comprising a cycloolefin polymer, COP, and/or a cycloolefin copolymer, COC, and that the container contains an acid.

2. A container according to 1, wherein the cycloolefin polymer or the cycloolefin copolymer has a water  
10 vapour permeability below  $0.05 \text{ g}\cdot\text{mm}/\text{m}^2\cdot\text{day}$ , when tested according to DIN 53 122 at  $23^\circ\text{C}$ .

3. A container according to any of claims 1 or 2, wherein the cycloolefin polymer or the cycloolefin copolymer has a water uptake below 0.01%, when tested  
15 according to ISO 621 at  $23^\circ\text{C}$ .

4. A container according to any of claims 1-3, wherein the cycloolefin polymer or the cycloolefin copolymer has an acetic acid permeability below  
0.02  $\text{ml}/\text{m}^2\cdot\text{day}$ , preferably below  $0.007 \text{ ml}/\text{m}^2\cdot\text{day}$ , when  
20 tested according to ISO/CD 15105-2.

5. A container according to any of claims 1-4, wherein said acid is chosen from a group comprising of acetic acid, hydrochloric acid, gluconic acid, lactic acid, carbonic acid, and citric acid, preferably acetic  
25 acid.

6. A container according to any of claims 1-5, wherein the acid is an acidic liquid.

7. A container according to any of claims 1-6, wherein the acid is a concentrate for a dialysis fluid.

8. A container according to any of claims 1-7, wherein the polymer material includes a cycloolefin copolymer, COC and the COC is an amorphous copolymer.  
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9. A container according to claim 8, wherein the cycloolefin copolymer is based on cycloolefins and linear  
35 olefins.

10. A container according to any of claims 1-9, wherein the acid diffusion barrier polymer is processed

in a multilayer arrangement with at least one polymer chosen from a group consisting of PP, PE, PA, EVA and/or EVOH.

11. A container according to claim 10, wherein the  
5 acid diffusion barrier polymer at least is provided as an inner layer in contact with the contained acid.

12. A container according to claim 10, wherein the acid diffusion barrier polymer is provided as a layer on the inner side of a polymer layer comprising a polymer  
10 having a high water uptake.

13. A container according to claim 12, wherein said polymer having a high water uptake is EVOH.

14. A container according to claim 10, wherein a first inner layer includes PP or PE or a mixture thereof,  
15 a second layer includes COC, a third, fourth and a fifth layers include PE and an outer layer includes PA.

15. A container according to any of claims 1-14, wherein the wall structure is made of a coextruded film.

16. A container according to any of claims 1-15,  
20 wherein at least a first and a second compartment (2, 3) are provided within said container (1).

17. A container according to claim 16, wherein said compartments (2, 3) are separated by an openable seal (4) provided between the compartments.

25 18. A container according to any of claims 16 or 17, wherein the first compartment (2) comprises the acid fluid and the second compartment (3) comprises a carbohydrate containing fluid.

19. A container according to claim 18, wherein the  
30 carbohydrate containing fluid is a glucose fluid or a fluid of glucose like compounds.

20. Use of a cycloolefin polymer, COP, and/or a cycloolefin copolymer, COC, as an acid diffusion barrier polymer in a container for an acid.

35 21. Use of the container according to any of claims 1-19 for storing a medical solution for hemodialysis, hemodiafiltration, hemofiltration, peritoneal dialysis,

intensive care fluid management, nutrition compounds concentrates, lavage fluids or for infusion therapies.

22. A system for providing a medical solution comprising at least one container according to any of  
5 claims 1-19.

23. A system according to claim 22 comprising a water reservoir (21), a glucose concentrate (22), at least one electrolyte concentrate (22, 29, 30) and a fluid acid (22).

10 24. A system according to claim 22 or 23, wherein the concentrates (22, 29, 30) have such pH-values that the resulting medical solution after mixing is substantially neutral, having a pH-value between 6,5 and 8,0 preferably between 7,0 and 7,4.

15 25. A method for treatment by hemodialysis, hemodiafiltration, hemofiltration, peritoneal dialysis, intensive care fluid management, nutrition compounds, concentrates, lavage fluids or infusion therapies by means of a container according to any of claims 1-19.

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